REMARKS

The Examiner has maintained the rejections previously made:

Claims 1-5 under 35 USC 102(a) as anticipated by Satoh

Claims 1 and 3-5 under 35 USC 102 (a) or (b) as anticipated by Capote 2001/0020071, Young 4,816,531, Jackson 5,081,167, or Japanese patents 61-237436 or 55-65217.

Claims 6 and 7 under 35 USC 103(a) as unpatentable over Satoh, Capote, Young, Jackson, and Japanese '436 and '217, in view of Roth 6,194,490, Marshall 3,746,686, and Japanese 57-100128.

Applicants have amended claim one to more specifically claim their invention and clarify that the B-stageable adhesive composition comprises two separate curable compounds with two distinct curing initiators or agents. Support for this can be found in the specification, for example, at paragraphs [0017], [0018], [0019]. These components have curing temperatures or ranges that are sufficiently separated to allow the component parts to cure separately. This has not been disclosed, taught, or suggested by any of the art cited by the Examiner.

Applicants reiterate here the arguments made in the paper filed 03 March 2004. In all of the above citations, the curing processes were designed deliberately to co-cure the two or three resins involved. This was done by selecting a bismaleimide that homopolymerized at the same temperature as the epoxy, or by selecting an accelerator, such as an amine, which can react with both an epoxy and a bismaleimide. For the Examiner's convenience, the previous arguments are again presented in abbreviated form:

Satoh (US 6,187,416) This reference teaches a co-curing mechanism, and not a dual cure at two separate temperatures. The Examiner relied on Example 1, in which only one accelerator is used, indicating to one skilled in the art that the two resins, the epoxy and the bismaleimide, are intended to cure at the same time. Moreover, both of these resins have a broad

gradual cure from about 140°C to about 200°C making it possible for one curing accelerator to work for both. as

Capote (US 2001/0020071) In this reference, a resin system comprising epoxy, cyanate ester, and bismaleimide cures with a chosen co-curing agent. The Examiner relied on Example 6; however, that example discloses that the bismaleimide resin is adducted to the volatile co-curing agent APGE, and this adduct then reacted with cyanate ester and epoxy. The cure takes place in stages for the purpose of preventing voids or bubbles, but there is no teaching or suggestion that there are independent curing stages for the separate chemistries.

JP 61-237436 This reference discloses a semi-curable adhesive comprising a bismaleimide, triazine, and epoxy resin system. There is no teaching here of any of the chemistries curing separately. There is reference to semi-cure, which more likely means that the whole composition is partially cured at some point, and then finally cured later.

JP 55-65217 This reference discloses a blend of bismaleimide, an epoxy resin, hardener, and a photosensitizer, which blend is semi-cured followed by heating. On page 3 of the translation, the fourth full paragraph reads: "In the present invention, the maleimide compounds in the resin composition are irradiated with light at a low temperature in the presence of a sensitizer and undergo polymerization. The resulting three-dimensional crosslinks allow the formation of a network structure and *a semi-cured state*. The subsequent heat curing will result in curing of the epoxy resins and *progress of the reaction of the maleimide compounds to induce complete curing* and formation of a cured product with high heat resistance." This indicates that the maleimide compounds are not completely cured before the epoxy compounds and that final curing occurs at the same time for both the epoxy and maleimide compounds.

Young (US 4,816,531) In this reference, a composition prepared from an epoxy, bisphenol A novolak, BMI, and an imidazole, is B-staged at 163°C and cured at 180°C and 200°C. At column 5 , lines 2 to 9, it is stated that the prepreg

is heated "at a temperature sufficient *to remove the solvent and to partially cure without gelat[i]on"* generally from 40°C to 180°C for a time preferably of 30 seconds to about 2 minutes. This prepreg is then cured, column 5, line 17, at temperatures in the range of 160°C to 300°C at a time of 30 minutes to 4 hours. The absence of gelation clearly indicates little or no cure at the lower temperature, with all cure taking place at the higher temperature. This is a co-curing procedure. Note also that only one accelerator is used in the examples.

Jackson (US 5,081,167) In Example 1, as relied on by the Examiner, a mixture of BMI, epoxy and cyanamide is B-staged at 163°C and cured at 180°C and 220°C. At column 4, lines 44 to 56, it is disclosed that a substrate impregnated with the disclosed resin blend is partially cured without gelation at about 160°C to 195°C for a time effective to remove the solvent and to advance the resin to the B-stage. Cure of the resins occurs at 160°C to 200°C. Again, the absence of gelation shows that little or no real curing is occurring at the B-stage, and the composition is co-cured at the higher temperature. Note that in the examples only one curing accelerator is used.

Applicants understand the Examiner's position to be that if the same or similar resins are present in the prior art as in the instant application, the curing must be the same. However, that is not necessarily the case. In the above references, the curing is a co-curing of all the resins present *at the same time*. There is nothing to indicate or teach that the individual resins can be cured separately so that the different properties that are present in an uncured adhesive and a cured adhesive can be present simultaneously. At the B-stage in the instant adhesive, the separate cure is the essence of the invention. The characteristics of a cured thermoset, that is, cross-linked chemistry and flexibility, and the characteristics of an uncured thermoset, that is wetting ability, flow, and adhesion, are present at the same time because the components are fully cured at separate times.

The Examiner also has rejected the claims under 35 USC 102(b) as being anticipated by Yoshino US 6,063,649, and by Gorodisher US 5,494,981. Applicants respectfully traverse.

Yoshino (US 6,063,649) is not directed to a blended adhesive composition containing two components that cure by distinct chemistries at separate temperatures as in the instant invention. Yoshino discloses two separate compositions that are not blended and that are disposed in different locations on a substrate. *See*, for example, at the bottom of column 9 to the top of column 10, where it is stated:

"That is, the first adhesive component 80a having the first characteristic of the adhesive material 80 is disposed to a position corresponding to a substantially central portion on the plane of the semiconductor element, while the second adhesive component 80b having the second characteristic is disposed to the periphery of the first adhesive component."

Thus, Yoshino does not anticipate the instant claims and applicants request the Examiner to remove the rejection on these grounds.

Gorodisher (US 5,494,981) is directed to a composition with two specific curable compounds, a cycloaliphatic epoxy and a cyanate ester, and only one initiator, a Bronsted acid. There is no anticipation of a composition with two curable compounds that cure by different chemistries, with different initiators, and at different temperatures. Thus, Gorodisher does not anticipate the instant claims and applicants request the Examiner to remove the rejection on these grounds.

Applicants are also submitting a Declaration comparing the co-curing inventions in some of the prior art with the dual curing invention of this application, to further explain and clarify that the instant dual curing composition of this invention is directed to two separate chemistries, with two separate initiators, at two distinct curing temperatures.

Based on the above amendments and remarks, and the enclosed Declaration, applicants urge the Examiner to issue an allowance . End or Remarks.